

ABSTRACT

A system of transmitting optical signals during a subsea oilfield operations comprises a subsea fiber optical signal carrier. The fiber optical signal carrier includes a first optical fiber having a least one doped section that acts as an amplifier to optical signals passing there through when the doped section is supplied with optical energy. A second optical fiber is disposed alongside the first optical fiber for carrying optical energy. An optical coupler between the second optical fiber and the at least one doped section supplies optical energy from the second optical fiber to the first optical fiber. At least one sensor provides optical signals to the first optical fiber. An optical energy source supplies optical energy to the second optical fiber.